We Claim:

1. A combustor for a gas turbine, comprising:

a combustor body;

a casing enclosing said body and defining a passageway therebetween for carrying compressor discharge air;

a catalytic reactor disposed in said body for controlling pollutants released during combustion;

a first manifold for extracting a predetermined amount of compressor discharge air from said passageway;

a second manifold for receiving the extracted air and supplying the extracted air to said body at a location bypassing said catalytic reactor; and

a plurality of injection tubes in communication with said second manifold for injecting the extracted air into said body, said injection tubes and said second manifold being disposed in a substantially common radial plane.

2. The combustor of claim 1, wherein said casing includes an array of openings adjacent to said first manifold to enable the compressor discharge air to flow through said openings into said first manifold; and

a conduit for supplying the extracted air from said first manifold to said second manifold.

3. The combustor of claim 2, wherein the injection tubes are equally spaced from one another about said second manifold.

4. The combustor of claim 3, wherein first and second ends of said conduit terminate in said first and second manifolds, respectively.

5. The combustor of claim 4, wherein said first and second manifolds are disposed about an outer surface of said casing.

6. In a combustor comprising a body with an inner liner and a casing enclosing said body defining a passageway therebetween, a catalytic reactor disposed within said body, first and second manifolds about said casing, and a conduit for connecting said first and second manifolds, a method for quenching combustion comprising the steps of:

extracting a predetermined amount of compressor discharge air, before the air flows into said reactor, from said passageway into said first manifold;

supplying said extracted air from said first manifold to said second manifold via said conduit;

injecting the extracted air received by said second manifold into said body at a location along the body bypassing said reactor using an array of injection tubes; and

disposing said injection tubes and said second manifold in a substantially common radial plane.

7. In a gas turbine comprising a compressor, a combustor, and a turbine, said combustor including a body with an inner liner, a casing enclosing said body defining a passageway therebetween for carrying compressor discharge air, a catalytic reactor disposed within said body, first and second manifolds disposed about said casing, and a conduit for connecting said first and second manifolds, a method for quenching combustion comprising the steps of:

extracting a predetermined amount of compressor discharge air, before the air flows into said reactor, from said passageway into said first manifold;

supplying said extracted air from said first manifold to said second manifold via said conduit;

injecting the extracted air received by said second manifold into said body at a location along the body bypassing said reactor using an array of injection tubes; and

disposing said injection tubes and said second manifold in a substantially common radial plane.

8. A combustor for a gas turbine, comprising:

a combustor body;

a casing enclosing said combustor body and defining an annular passageway therebetween for carrying compressor discharge air into said combustor body at one end thereof;

a reaction zone within said combustor body for main combustion of fuel and air;

a first annular manifold surrounding said casing and arranged to extract a predetermined amount of compressor discharge air from said annular passageway;

a second annular manifold surrounding said casing manifold and arranged to receive the extracted air, said second manifold located downstream of said first manifold in a combustion flow direction;

a conduit for supplying the extracted air from said first manifold to said second manifold; and

a plurality of injection tubes in communication with said second manifold for injecting the extracted air into said combustor body downstream of said reaction zone in the combustion flow direction to quench combustion, said injection tubes and said second manifold being disposed in a substantially common radial plane.

9. The combustor of claim 8, further comprising:

an array of openings disposed in said casing to permit the compressor discharge air to flow through said openings into said first manifold; and

a conduit for supplying the extracted air from said first manifold to said second manifold.

10. The combustor of claim 9, wherein the injection tubes are equally spaced from one another about said second manifold.

11. The combustor of claim 9, wherein said conduit includes a control valve to regulate air flowing from said first manifold to said second manifold.

12. A gas turbine comprising:

a compressor section for pressurizing air;

a combustor for receiving the pressurized air; and

turbine section for receiving hot gases of combustion from the combustor, said combustor including a combustor body with an inner liner, a casing enclosing said body and defining a passageway therebetween for carrying compressor discharge air, a reaction zone within said combustor body for combustion of fuel and air, a first manifold surrounding said casing and arranged to extract a predetermined amount of compressor discharge air from said passageway, a second manifold surrounding said casing and arranged to receive the extracted air, said second manifold located downstream of said first manifold in a combustion flow direction; a conduit for supplying the extracted air from said first manifold to said second manifold, and a plurality of injection tubes in communication with said second manifold for injecting the extracted air into said combustor body downstream of said reaction zone in the combustion flow direction to quench combustion, said injection tubes and said second manifold being disposed in a substantially common radial plane.

13. A gas turbine according to claim 12, wherein said casing further includes an array of openings adjacent to said first manifold to enable the compressor discharge air to flow through said openings into said first manifold.

14. The gas turbine of claim 13, wherein the injection tubes are equally spaced from one another about said second manifold.

15. A combustor for a gas turbine, comprising:

a combustor body;

a casing enclosing said combustor body and defining a passageway therebetween for carrying compressor discharge air into said combustor body at one end thereof;

a reaction zone within said combustor body for combustion of fuel and air;

a first annular manifold surrounding said casing and arranged to extract a predetermined amount of compressor discharge air from said annular passageway;

a second annular manifold surrounding said casing manifold and arranged to receive the extracted air, said second manifold located downstream of said first manifold in a combustion flow direction;

a conduit for supplying the extracted air from said first manifold to said second manifold; and

a plurality of injection tubes in communication with said second manifold for injecting the extracted air downstream of said reaction zone in the combustion flow direction, wherein said injection tubes include a feedhole configuration adapted to channel air from the second manifold.

16. The combustor of claim 15, wherein the injector tube includes a greater feedhole area facing upstream of a manifold airflow direction than facing downstream of the manifold airflow direction.

17. The combustor of claim 15, wherein the injection tubes include a feedhole opening extending at least one-fourth of the circumference of the outer surface of the injection tube.

18. The combustor of claim 15, wherein at least one feedhole includes a rectangular shaped opening.

19. The combustor of claim 15, wherein at least one feedhole includes an elliptical shaped opening.

20. The combustor of claim 15, wherein the injection tubes each have a single feedhole.

21. The combustor of claim 15, wherein the injection tubes include a plurality of feedholes.

22. The combustor of claim 15, wherein the injection tubes and the second manifold are disposed in a substantially common radial plane.

23. The combustor of claim 15, wherein the injection tubes are equally spaced from one another about the second manifold.

24. The combustor of claim 15, wherein the injection tubes are unequally spaced from one another about the second manifold.

25. The combustor of claim 15, further including a catalytic reactor disposed in the combustor body.

26. The combustor of claim 15, further including a flow metering device to measure the quantity of air passing through the conduit.

27. The combustor of claim 26, further including a low pressure drop flow conditioner located upstream of the flow metering device.

28. The combustor of claim 15, further comprising:

an array of openings disposed in said casing to permit the compressor discharge air to flow through said openings into said first manifold; and

a conduit for supplying the extracted air from said first manifold to said second manifold.

29. The combustor of claim 28, wherein said conduit includes a control valve to regulate air flowing from said first manifold to said second manifold.

30. In a combustor comprising a body with an inner liner and a casing enclosing said body defining a passageway therebetween, a reaction zone within the body for combustion of fuel and air, first and second manifolds about said casing, and a conduit for connecting said first and second manifolds, a method for quenching combustion comprising the steps of:

extracting a predetermined amount of compressor discharge air, before the air flows into said reactor, from said passageway into said first manifold;

supplying said extracted air from said first manifold to said second manifold via said conduit;

injecting the extracted air received by said second manifold at a location downstream of said reaction zone using an array of injection tubes; and

disposing said injection tubes and said second manifold in a substantially common radial plane, wherein said injection tubes include a feedhole configuration adapted to channel air from the second manifold.

31. The method of claim 30, wherein the injection tubes each have a greater feedhole area facing upstream of a manifold airflow direction than facing downstream of the manifold airflow direction.

32. The method of claim 30, wherein the injection tubes include a feedhole opening extending at least one-fourth of the circumference of the outer surface of the injection tube.

33. The method of claim 30, wherein at least one feedhole includes a rectangular shaped opening.

34. The method of claim 30, wherein at least one feedhole includes an elliptical shaped opening.

35. The method of claim 30, wherein the injection tubes each have a single feedhole.

36. The method of claim 30, wherein the injection tubes include a plurality of feedholes.

37. The method of claim 30, wherein the injection tubes and the second manifold are disposed in a substantially common radial plane.

38. The method of claim 30, wherein the injection tubes are equally spaced from one another about the second manifold.

39. The method of claim 30, further including catalytically combusting a portion of the fuel and air in the combustor body.